

their skeleton. The seat of these tumours is chiefly the neural or hæmal processes, more rarely the interneurals and inter-hæmals. In the typical specimen of *Corvina Moorii* a date-like osseous tumour is attached to the spine of the second dorsal fin; and a second specimen which we have seen, from the same locality, has, singularly enough, a perfectly similar tumour on the same spine.

We have formerly (Fishes, ii. p. 296) expressed our opinion that these peculiar tumours are anomalous deposits of osseous matter, and that species founded on such a character (like *Corvina clavigera*, Cuv. & Val.), are extremely doubtful. Indeed we have now not the least doubt that this *Corvina clavigera* is identical with *C. nigrita*, of which we have seen an example, likewise belonging to the Liverpool Museum, which has the ventral and anal spines excessively thickened, in consequence of a similarly abnormal deposition of bony substance.

PROCEEDINGS OF LEARNED SOCIETIES.

ZOOLOGICAL SOCIETY.

Jan. 10, 1865.—Dr. J. E. Gray, F.R.S., in the Chair.

ON THE ANATOMY AND HABITS OF THE WATER-OUSEL (*CINCLUS AQUATICUS*). BY EDWARDS CRISP, M.D., F.Z.S, ETC.

I have for a long time been occupied in preparing a work on the British Birds, more especially in reference to their structure, in connexion with their habits, the nature of their food, &c.; and there is no bird that has puzzled me so much as the Water-Ousel, and it is on this account that I bring the subject before the Society, hoping that I may obtain some information from the members present. I need not go very minutely into the history of this bird; but it will, I think, be interesting to compare some parts of its anatomy with those of the other *Merulidæ*. The object of my paper will be to endeavour, first, to ascertain by what means this bird, so unlike all aquatic birds in form, is enabled to dive and remain some time under water and capture its prey; secondly, to inquire respecting the nature of its food, and its supposed depredations on the ova and fry of fishes. I may premise that I have shot several of these birds in Scotland for the purpose of ascertaining the character of their food, and that I have had many opportunities of observing their habits. The three specimens on the table were sent to me recently (Nov. 30) by my friend Mr. Grierson, of Thornhill, Dumfriesshire; and I have dissected and examined them, as I had done on former occasions, in relation to the two questions above referred to. As the evidence of one inquirer in reference to the habits of this or of any other bird is comparatively valueless, let me quote a few authorities upon the subject.

Ann. & Mag. N. Hist. Ser. 3. Vol. xvi.

Montagu, in his Ornithological Dictionary, says he “discovered the nest of this bird in consequence of the old bird flying, with a fish in its bill, to the young. These were nearly fledged, but incapable of flight; and the moment the nest was disturbed, they fluttered out and dropped into the water, and, to our astonishment, instantly vanished, but in a little time made their appearance at some distance down the stream, and it was with difficulty two out of five were taken, as they dived on being approached. The motion under water,” he says, “is effected by short jerks from the shoulder-joint, not, as in all other diving-birds, with extended wings.”

Yarrell dissected this bird, and found nothing in its structure to account for its diving and remaining on the ground without any muscular effort.

Mr. Macgillivray (Naturalist, vol. i. p. 105) says, “I have seen the Dipper moving under water in situations where I could observe it with certainty, and I readily perceived that its actions were similar to those of the Divers, Mergansers, and Cormorants, which I have often watched from an eminence as they pursued the shoals of sand-eels along the sandy shores of the Hebrides. It in fact flew, not merely using the wing from the carpal joint, but extending it considerably, and employing its whole extent as if moving in the air. The general direction of the body is obliquely downwards; and great force is evidently used to counteract the effects of gravity, the bird finding it difficult to keep at the bottom.”

Other observers have given similar testimony, some asserting that bubbles of air appeared on the surface after the bird was submerged: but these must have arisen from the disturbance of the earth at the bottom of the river; for no diving-bird, I believe, emits air from its lungs when under water. The air is got rid of before the act of diving takes place. But let me now speak of some parts of the anatomy of this bird, before I attempt to answer the first question. The average weight of this bird is said to be $2\frac{1}{2}$ oz.; but in four that I have weighed the average weight has been about $2\frac{1}{4}$ oz., the males being a little heavier than the females; the length $7\frac{1}{4}$ inches, and 11 inches from the tip of each wing. The brain weighed 10 grains, the eyes 12 grains, the skin and feathers 132 grains, the pectoral muscles 135 grains. The gizzard moderately thick, and lined with a tough cuticle. The length of the whole alimentary tube was 16 inches; the œsophagus, as in the other *Merulidæ*, not dilated into a crop. The trachea of nearly uniform calibre, and consisting of 36 rings; the vocal muscles largely developed, as in the other members of this family. The tail-glands comparatively of large size.

I have depicted all the above parts in the drawing before the Society; but the parts of the anatomy of this bird to which I am anxious to direct attention are the shortness of the wing and the great development of the wing-muscles—features which I believe will in a great measure account for the diving-powers of this bird and its progress under water. As might be expected, too, from the frequent motion of the tail, the caudal muscles are much developed. On comparing the visceral anatomy of this bird with that of the other

British *Merulidæ*, all of which I have dissected, with the exception of White's Thrush (*Turdus Whitei*), very little proportional difference is observed. The length of the intestinal tube in the Redwing (*T. iliacus*) is 14 inches; the brain weighs 16 grains, the pectoral muscles 170 grains, the weight of the body being about $2\frac{1}{2}$ oz. In the Fieldfare (*T. pilaris*), weighing $4\frac{1}{2}$ oz., the brain weighs 26 grains, and the intestinal tube measures 22 inches. In the Ring-Ousel (*T. torquatus*), weight 3 oz. 180 grains, the alimentary canal is $13\frac{1}{2}$ inches in length, and the weight of the brain is 26 grains; and these parts in the Missel-Thrush (*T. viscivorus*), in the Blackbird (*T. merula*), and Song-Thrush (*T. musicus*) are of nearly the same proportionate length and weight. In the young Water-Ousel that I have dissected, I observed nothing remarkable in its anatomy. So that, as regards the visceral anatomy, there is no important difference between the Water-Ousel and the other members of this group, although among the British Merules this is the only bird that feeds exclusively on animal food; but, to show how the habits of a bird may be altered in this respect, I have mentioned a young Water-Ousel that was reared under a Bantam, and fed on porridge (P. Z. S. 1859, p. 200).

Some writers upon this bird have spoken of the claws as being well adapted for holding on to stones and other objects at the bottom of the water; but on comparing the claws of the Water-Ousel with those of the other *Merulidæ*, it will be seen that the bird has no advantage of this kind, although the comparatively blunted form of the claw would lead to the inference that it is used for the purpose mentioned.

The bones of the Water-Ousel, like those of the other British members of this group, contain no air*; and it is singular that the skeleton of the Fieldfare, Redwing, and Missel-Thrush (birds of passage) should in this respect resemble that of the short-flighted Water-Ousel.

As regards the food, I am afraid that we cannot entirely acquit this bird of occasionally destroying the fry of fish; but I know of no reliable evidence to prove that it takes the ova. In the three specimens before the Society, the gizzards of all contained Entomostraca, and one of them a Gordian (*Gordius aquaticus*). In others that I have dissected, I have discovered chiefly Entomostraca and the larvæ of *Phryganea*; indeed I have found that its food is very similar to that of the young Salmon (*Salmo salar*).

Mr. Gould, in his present work 'The Birds of Great Britain' (part 1), mentions that he examined five of these birds that were shot on the River Usk, in Nov. 1859, and that no trace of spawn was found in any of them; their hard gizzards were entirely filled with the larvæ of *Phryganea* and the Water-beetle (*Hydrophilus*). One had a small Bullhead (*Cottus gobio*), which the bird had doubtless taken from under a stone. Mr. Gould thinks that, by destroying insects and their larvæ that may attack the ova and fry of fishes, these birds may do great service.

* I need scarcely say that some of the cranial bones of birds, like those of mammals, contain air.

Mr. Macgillivray found beetles and water shells (*Lymnea* and *Ancylus*) and the larvæ of *Ephemera*, *Phryganea*, and other aquatic insects.

Sir W. Jardine, in his 'Birds of Great Britain,' says, "In one part of Scotland, sixpence per head is given for these birds. In another district, 548 were killed in three years." He adds, "The ova of any kind of fish we have never detected in the stomach or intestines; nor do we think that they habitually frequent the places where the spawn would be deposited; and if they did, we would deem it almost impossible that they could reach it after it was covered in the spawning-bed," &c.

So that I hope we may fairly acquit this interesting little bird of the depredations of which it has so often been accused; but I hope that we shall ere long see the Water-Ousel, with the Little Grebe (*Podiceps minor*), in the Society's fish-house, where a better opportunity will be afforded of learning its habits.

As is well known, this bird has been variously classed by different writers. Mr. Gould, in the work before quoted, says he regards *Cinclus* as one of the isolated forms of ornithology, and that it has some remote alliance with the genera *Troglodytes* and *Scytalopus* and their allies.

DESCRIPTION OF A NEW SPECIES OF ENTOZOOON FROM THE
INTESTINES OF THE DIAMOND-SNAKE OF AUSTRALIA (*MORELIA SPILOTES*). BY W. BAIRD, M.D., F.L.S.

BOTHRIDIUM (*SOLENOPHORUS*, Creplin) *ARCUATUM*, Baird.

Length of the largest specimen (which, however, is not quite perfect at lower extremity) 10 inches. Breadth, about the middle of its length, 4 lines. Head, consisting of its two tubular bothria, about 7 lines in length and 3 lines in breadth. Bothria smooth, cylindrical, arched outwardly, and connected together throughout their whole extent, and each of about the same diameter at the top as at the bottom. Upper openings circular and large; lower openings very small and quite terminal. Neck none. Articulations at anterior extremity extremely small, appearing like mere rugæ. Articulations of rest of body, in adult specimens, very numerous, narrow, much broader than long, and crowded together; in smaller and apparently younger specimens (which, however, look as if perfect in length), the articulations near the posterior extremity are, comparatively speaking, much larger, longer than broad, and are more like those of *B. laticeps* or *B. pythonis*. The most distinguishing character is the size and shape of the head.

Hab. Intestines of the *Morelia spilotes*, from Australia. (*Mus. Brit.*).

For the specimens of this species I am indebted to Dr. A. Günther, who found them attached to the inner surface of the intestines

of a specimen of an Australian Python, the Diamond-Snake, *Morelia spilotes*.

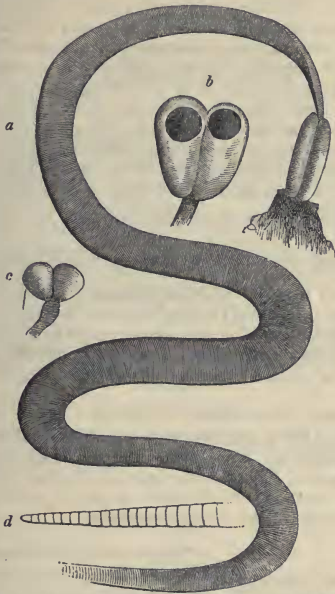


Fig. a. Worm of natural size, attached to inner surface of intestine.

Fig. b. Bothria, slightly enlarged, showing the upper openings.

Fig. c. The same, showing lower openings.

Fig. d. Posterior extremity of a young specimen, showing the, comparatively speaking, larger articulations.

Jan. 24, 1865.—E. W. H. Holdsworth, Esq., in the Chair.

The Secretary read the following extract from a letter addressed to him by Dr. Bennett, F.Z.S., dated Sydney, Nov. 18th, relating to a living specimen of the Lyre-bird of New Holland (*Menura superba*), which the Acclimatization Society of that city were intending to transmit by the first favourable opportunity to this Society:—

“After repeated trials of keeping this wild and restless bird in captivity, and having procured and lost in one year numerous living birds of all ages, from the young bird to the adult, we have so far succeeded as to preserve one alive and in excellent health, and feeding well, since the 23rd of August last; to this day it continues in good health and condition. It is a young bird, at present in im-

mature plumage, and the sex cannot yet be determined. It is placed in a large wire compartment with the Talegallas or Brush-Turkeys, and it appears to enjoy their society very much. Whether their company reconciles it to confinement I cannot say; but, at all events, it feeds well and thrives, and displays a great amount of activity for a great part of the day, running about the cage incessantly, scratching the ground. It feeds on the larva of the *Tettigonia* or "Locust" of the colonists, meat chopped very small, slugs, and worms. This bird was captured at Broughton's Pass, Illawarra district. Should we be fortunate enough to keep it alive till the time of the departure of the 'La Hogue,' it will be sent to the Zoological Society under Mr. Broughton's care, when it will have every chance of reaching England alive."

February 14, 1865.—Dr. J. E. Gray, F.R.S., in the Chair.

The Secretary read the following letter, addressed by Dr. H. Burmeister, of Buenos Ayres (Foreign Member), to Dr. J. E. Gray, containing the description of a new species of Whale, proposed to be called *Balænoptera patachonica*, together with some particulars as to specimens of certain other Cetacea in the Museum of Buenos Ayres.

Dr. Gray stated, in reference to the new Whale, that it was of much interest as being the first well-described Fin-Whale from the southern hemisphere. Dr. Gray considered it evidently a typical species of the genus *Physalus*, distinguishable from all the northern species by the shortness of the lateral rings compared with the diameter of the bodies of the cervical vertebræ.

"Buenos Ayres, 22nd December, 1864.

"I now send you drawings of the Whale in the Buenos Ayres Museum, drawn by myself, and, as I believe, exact to nature.

"Fig 1. The skull. We have two specimens—one complete, the other consisting only of the hinder part, without the jaws. In the former the upper jaws are no longer in position, but separated from the cranium, and therefore little importance can be attached to the width of the opening between the intermaxillary bones in the anterior part of the cleft between them; it may be somewhat exaggerated. All the other parts are entirely exact from nature, and well preserved.

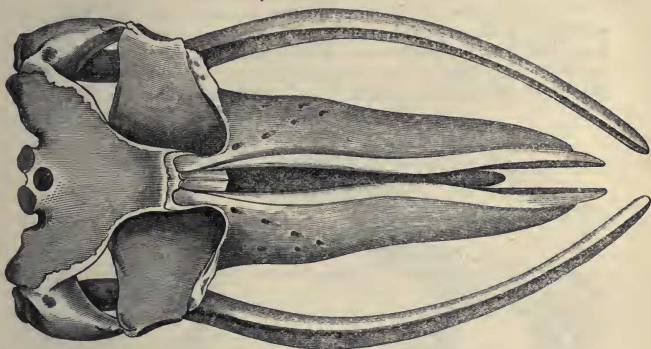
"Length of the intermaxillary, 7 feet 2 inches; length of the maxillary, 7 feet; length of the under jaw, 10 feet 2 inches. Breadth of the frontal bones between the orbits, 5 feet; breadth of the vertex behind, 2 feet 8 inches.

"The baleen is entirely black, without any other colour. We have two kinds in the Museum—one $5\frac{1}{2}$ feet and the other 1 foot 8 inches in length. This last only may be from the *Balænoptera*; the other perhaps from a *Balæna*, because it is much more slender and more fringed.

"Comparing my drawing (fig. 1) with that of Cuvier from the Cape *Balænoptera* (Oss. Foss. pl. 26. fig. 2), you will find that the

suture between the frontal bone and the parietal is situated much more towards the external part of the frontal bone, being in my skull

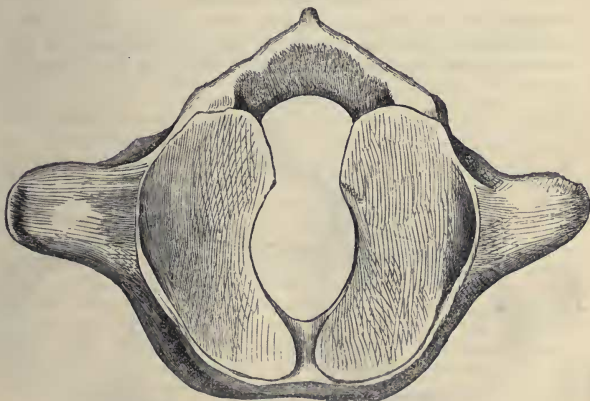
Fig. 1.



Skull seen from above.

exactly in the angle where both bones are united, and therefore not seen from above in my drawing. Another difference of the species

Fig. 2.



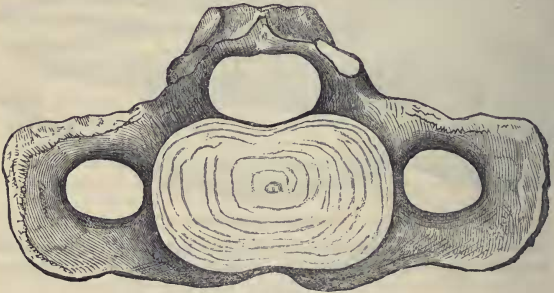
First cervical vertebra

is indicated by the longitudinal carina in the vertex of the Cape species, there being no trace of such carina in either of my specimens.

“Unfortunately the tympanic bones are wanting in both, and I can tell you nothing of them. But the zygomatic bone is preserved, and is of the same form as that figured in Cuvier’s work, figs. 1 and 3, but somewhat smaller than the latter figure.

“The seven cervical vertebræ are free, separate from each other, and the body of every one has the epiphyses on each side, the specimen being that of a young individual. But in the atlas and front side of the axis these epiphyses do not exist. I send you drawings of the first (fig. 2), the second (fig. 3), the fourth (fig. 4), and the sixth (fig. 5)

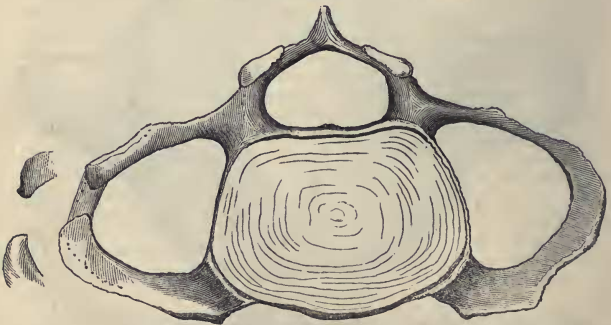
Fig. 3.



Second cervical vertebra.

vertebræ; the third exactly resembles the fourth, and the fifth only differs in a small opening in the lateral arc, indicated in my drawing of the fourth, on the left side. The seventh has no inferior

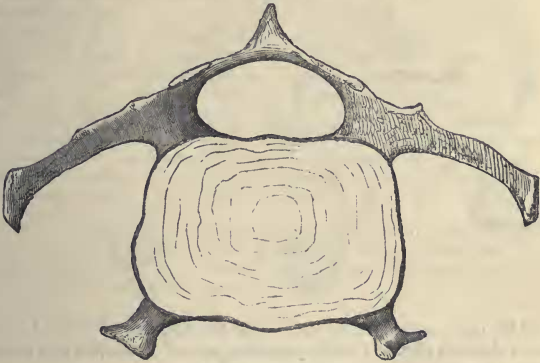
Fig. 4.



Fourth cervical vertebra.

process at all, but a much stronger superior one, of the same form. All the five vertebræ after the second are very thin, 2 inches in

Fig. 5.



Sixth cervical vertebra.

diameter, the third being the thinnest of all, and the following ones somewhat thicker; the seventh is $2\frac{1}{4}$ inches in thickness.

“Of costal or dorsal vertebræ we have fourteen, very well indicated by the flattened end of the transverse processes being united with the ribs. The first of these dorsal vertebræ is very thin, 3 inches in diameter; and the second somewhat thicker, $3\frac{1}{2}$ inches; after these the bodies are much stronger, from 6 to 8 inches in diameter. The three first dorsal vertebræ have transverse processes more rounded, and directed forward. After the third they are more flat and broad, and directed transversely to the sides. After these fourteen vertebræ follow twelve others with thinner transverse processes, rounded and sharp at the end, and with bodies of much larger diameter—from 10 to 12 inches. Then follows a strong vertebra, the thirteenth, 12 inches in diameter, with a smaller and shorter transverse process, which seems to me the first caudal; but as the epiphysis is wanting, there is no attachment for the hæmapophysis on its hinder end. Indeed its body is flattened on the under side, not carinated as the body of the antecedent; which also seems to me to prove that it is the first caudal. Of hæmapophyses we have four in the Museum, of unequal size, the first 5 inches high, the largest 8 inches, and 3 to 4 inches broad between the laminæ.

“The ribs are not perfect as regards number, but the first seven or eight are preserved. I send you drawings of the upper and lower extremities of the first four (figs. 6, 7, 8, 9).

“The sternum is wanting, and of the os hyoideum we have only

the corpus, of precisely the same form as that figured in Cuvier's Oss. Foss. pl. 25. f. 14.

Fig. 6.



Fig. 7.



Fig. 8.

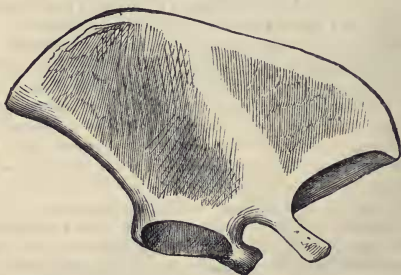


Fig. 9.



“Of the pectoral fin we have only the scapula, of which I send you a drawing (fig. 10); both processes are well developed and somewhat compressed.

Fig. 10.



Scapula.

“The animal was found some leagues from Buenos Ayres, on the banks of the River Plata, where it came ashore some thirty years ago. It was brought to the gardens of Rosas, at Palermo, where the skeleton was exhibited a long time, till, after the fall of the tyrant, it was transferred to the Museum. The parts now deficient were then lost.

“I suppose that the species might be the same as that you have indicated in your synopsis as *Balænoptera australis*, Desmoulin's (Voy. Ereb. and Terror, Mamm. p. 20); but as I have never seen

that animal, I am unable to speak concerning its external appearance. Therefore I believe it is better to describe the species in question under a new name, and I propose to you, if you please to accept it, that of *Balænoptera patachonica*.

“Since I have received the excellent books you sent me, and for which I give you my best thanks, I have found in them figures of the two skulls of Dolphins in the Buenos Ayres Museum. The larger is your *Delphinus Eurynome* (p. 38, pl. 17), and the smaller your *Delphinus microps* (p. 72, pl. 25). Both are inhabitants of the Atlantic in our latitude. The new *Phocæna* is wanting in your list. I propose to give the name *Phocæna spinipinnis* to it, from the numerous spines on the dorsal fin. We have the entire animal, with the skull, which I will examine when it is taken from the dry skin in which it is enclosed. By the next French steamer I will send you an accurate drawing and complete description of it.”

“P.S.—I have told you nothing of the under jaw of *Balænoptera patachonica*, because the surface of the bone is much destroyed by long exposure to the air, rain, and sun; but the hinder part, with the coronoid process, is represented in fig. 11.”

Fig. 11.



A letter was read, addressed to the Secretary by Prof. J. J. Bianconi, of Bologna, stating that, in the course of researches upon the osteology of the extinct genus *Æpyornis*, he had come to the conclusion that that form belonged to the Vulturidæ, and not to the Struthious birds.

Dr. A. Günther gave an account of the present state of his researches into the British species of Salmonoid fishes, which he had undertaken whilst engaged in preparing the catalogue of the specimens of this family in the collection of the British Museum. Dr. Günther stated that the genus *Salmo* was essentially an arctic group, inhabiting the northern portions of both hemispheres, and becoming more abundant in species upon receding from subtropical into temperate latitudes. Dr. Günther was disposed to believe that the species of this genus to be found within British waters would be ultimately found to be much more numerous than had been hitherto suspected. From the materials at present at his command, he had already been able to distinguish what he believed would turn out to be four new species of the non-migratory group of true *Salmo*, besides identifying several others heretofore imperfectly distinguished.

Dr. Günther requested the assistance of the Fellows of the Society and their friends in furnishing him with series of specimens of our native Salmons and Trouts from every part of the British islands, stating that in this difficult group of fishes no certain conclusions could be arrived at without a large number of specimens for comparison. Dr. Günther exhibited the subjoined table as giving a list of the British species of *Salmo* with which he was acquainted :—

Subgenus I. CHARRS (*Salvelini*).

1. *Willughbii* Windermere, &c.
2. *Perisii* Llanberis Lakes, N. Wales.
3. *alpinus* Scotland.
4. *Grayii* Lough Melvin, Ireland.
- Colii* Lough Eske and Lough Dan, Ireland.

Subgenus II. SALMONS (*Salmones*).

a. *Migratory Species*.

1. *salar* True Salmon of British rivers.
2. *cambricus* "Sewin" of South Wales.
3. *trutta* "Sea Trout" of Scotland.

b. *Non-migratory Species*.

4. *fario* England.
5. *Gaimardi* Scotland and N. W. England.
6. *nigripinnis*, sp. nov. . . Mountain-lochs of Wales (and Scotland).
7. *levenensis* Loch Leven, Scotland.
8. *ferox* "Gt. Lake Trout" of Scotland and Wales.
9. *orcadensis*, sp. nov. . . . Lakes of Orkneys.
10. *brachypoma*, sp. nov. . . Firth of Forth.
11. *stomachicus*, sp. nov. . . Ireland.

DESCRIPTION OF TWO NEW AUSTRALIAN BIRDS.

BY JOHN GOULD, ESQ., F.R.S., ETC.

1. MALURUS LEUCONOTUS.

The entire head, neck, under surface, rump, and tail deep blue; back, shoulders, greater and lesser wing-coverts, and secondaries silky white; primaries brown; bill black; feet brownish black.

Total length $5\frac{1}{2}$ inches; bill $\frac{1}{2}$; wing 2; tail $3\frac{7}{8}$; tarsi $\frac{7}{8}$.

Hab. Interior of Australia; precise locality unknown.

Remark.—In size this new species is very similar to *M. Lamberti*, while in its colouring it assimilates to *M. leucopterus*; from both, however, it may be at once distinguished by the whiteness of its back, which has suggested the specific name I have assigned to it.

2. ARTAMUS MELANOPS.

Lores, face, rump, and under tail-coverts black; stripe over the eye, ear-coverts, sides of the face, throat, and under surface delicate vinous grey; two middle tail-feathers black, the remainder black

largely tipped with white; upper surface of the wings grey, their under surface white; bill leaden grey, darkest at the tip; feet blackish brown.

Total length $6\frac{3}{4}$ inches; bill $\frac{3}{4}$; wing $4\frac{3}{4}$; tail, 3; tarsi $\frac{3}{4}$.

Hab. Central Australia.

Remark.—This large and fine species is unlike every other known member of the genus. It is most nearly allied to *A. albiventris*, but differs from that bird in the jet-black colouring of its under tail-coverts, and from *A. cinereus* in its smaller size and the greater extent of the black on the face. The specimen from which the above description was taken has been kindly sent to me by Mr. S. White, of the Reed-beds, near Adelaide, South Australia, who informs me that it was shot by him at St. Becket's Pool, lat. $28^{\circ} 30'$, on the 23rd of August, 1863, and who in the note accompanying it says, "I have never seen this bird south. It collects at night, like *A. sordidus*, and utters the same kind of call. It seems to be plentiful all over the north country. I saw it at St. Becket's Pool, feeding on the ground, soaring high in the air, and clinging in bushes, like the others. The two sexes appeared to be very similar in outward appearance. The stomachs of those examined were fleshy, and contained the remains of small Coleoptera.

ON SOME RECENTLY DISCOVERED BONES OF THE LARGEST KNOWN SPECIES OF DODO (*DIDUS NAZARENUS*, BARTLETT).
BY ALFRED NEWTON, M.A., F.L.S., F.Z.S.

The three-bones which I now have the pleasure of exhibiting have been recently received by me from my brother Mr. Edward Newton, a Corresponding Member of this Society, who himself found two of them in a cave on the south-west side of the island of Rodriguez, which he visited on the 2nd of November last. The third was obtained on the same island, about the same time, by Captain Barkly, a son and aide-de-camp of the Governor of Mauritius. All three belong, without doubt, to the largest known species of Dodo, to which Mr. Bartlett (P. Z. S. 1851, p. 284) applied the name *Didus nazareus*, and which was so unaccountably overlooked by Messrs. Strickland and Melville in their excellent monograph of the curious group *Didinæ*. These authors, as Mr. Bartlett showed (*loc. cit.*), did not distinguish between this very large bird and the smaller and more slender "Solitaire" (*Pezophaps solitaria*), which, if we are to trust the evidence before us, was, equally with *Didus nazareus* and *D. ineptus*, an inhabitant of Rodriguez.

The two bones found by my brother were picked up near the entrance of a very dry cave, where little, if any, stalagmitic deposit was forming, at least at the time of his visit. One is a perfect left *tarso-metatarsus*, and the other a left *humerus*, wanting its extremities, as is so often the case in specimens of this bone found under circumstances which lead to the belief that the bird to which it belonged had been eaten by men or dogs.

The bone found by Captain Barkly is a right *femur*. Though

nearly perfect, it seems to have been much exposed to the action of the weather, and, in consequence of its condition, it has sustained a little damage by the crumbling away of some part of its extremities. This has probably happened since its discovery; but one advantage results from the circumstance—namely, that the cellular structure of the bone is thereby rendered plainly visible.

I proceed to give the dimensions of these specimens, and, for convenience of comparison, I shall, as far as possible, follow Dr. Melville's plan of measurement ('The Dodo and its Kindred,' page 116).

Fragment of left *Humerus*.

	inches.	lines.
Transverse diameter of shaft	0	6
Antero-posterior diameter of shaft	0	4 $\frac{2}{3}$

Left *Tarso-metatarsus*.

Length from middle trochlear groove to inter-condyloid tubercle	}	6	10		
————— external trochlear to external condyloid fossa				6	4
————— internal trochlear to internal condyloid fossa				6	7
Breadth of upper extremity	1	6			
Antero-posterior diameter of the same	1	3			
Breadth of lower extremity	1	7			
Projection of ento-calcaneal process	0	8			

Right *Femur*.

Length from inter-condyloid notch to upper surface of neck	6	0	
————— upper edge of trochanter major to external condyle	}	6	9
Transverse diameter of shaft			
Antero-posterior	0	7 $\frac{1}{2}$	
Transverse diameter of upper extremity	2	0 $\frac{2}{3}$	
Transverse diameter of lower extremity	1	10	

All these specimens, unlike those in the Paris Museum, are entirely free from incrustation.

I believe there are no other examples of the *humerus* and *femur* of this species in this country. The specimen of the *tarso-metatarsus* figured in illustration of Mr. Bartlett's paper, to which I before referred (P. Z. S. 1851, Aves, pl. XLV. fig. 1) is, as I learn from Mr. Gerrard, now in the British Museum, and there are other examples of it in the Andersonian Museum at Glasgow.

I must here tender my thanks to Mr. W. K. Parker for the kind assistance he has rendered me in accurately measuring these bones.

And now I wish to make one suggestion. It is well known that at Oxford there is an old picture of a Dodo, painted by one of the Saverys, which seems hitherto to have been referred without hesitation to *Didus ineptus*. Mr. Strickland, in speaking of it, says:—"A remarkable feature in it is its colossal scale, the Dodo standing about 3 feet 6 inches high, and being double the size which the

picture in the British Museum, the description of eye-witnesses, and the existing remains warrant us in attributing to the bird. It is difficult to assign a motive to the artist for thus magnifying an object already sufficiently uncouth in appearance" ('The Dodo,' &c. p. 31). Is it not possible that the artist may in this painting have taken a life-sized portrait of the large species (*Didus nazarenus*, Bartlett) to which these bones belong?

In conclusion, I have to state that I should be very glad if these remarks were the means of exciting further search for the remains of the Dodo and its allies. In Rodriguez the bones must be far from scarce, and, as the present instance shows, they may be found with little trouble. My brother picked up two of them, as I have said, in a cave during a very hasty visit. It is a matter of the greatest regret that a regularly organized search is not instituted by some resident in that island, or by some visitor to whom time is no object. We may depend upon it that a rich reward awaits the careful explorer of the Mascarene caverns and alluvial deposits.

NOTICE OF THE SKULL OF A NEW SPECIES OF BUSH-GOAT
(*CEPHALOPHUS LONGICEPS*), SENT FROM THE GABOON BY
M. DU CHAILLU. BY DR. J. E. GRAY.

M. Du Chaillu has lately sent to the British Museum several skins and skeletons of the Gorilla (showing how abundant it must be at the Gaboon), the skin and skeleton of a Chimpanzee, three skeletons of the African Manatee, and the head of a Bush-Goat or *Cephalophus*.

The skull of the *Cephalophus* on examination proves quite distinct from any that has previously occurred to me; and as it indicates the existence of a large species of the genus, I have sent a notice of it to the Society in hope that we may before very long have a complete specimen of the animal to describe.

CEPHALOPHUS.

Section I. *Horns decumbent.*

CEPHALOPHUS LONGICEPS.

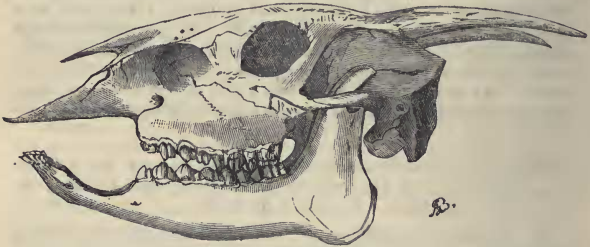
The skull elongate; face elongate, compressed in front of the eyes; the nose in front of the eyes narrow, sides only very slightly tapering; nasal bone very long, produced between the frontal behind, much longer than the medial suture of the frontal. The horns elongate, conical, diverging at the tips, decumbent, in a line with the forehead; forehead convex between the orbits.

Length of skull 10 inches 9 lines; width at zygoma 4 inches 7 lines; length of horn-cores 5 inches; length of lower jaw 9 inches.

The only species with which the animal can be compared, on account of its size, is *C. sylvicultrix*; but the skull of the latter is short and ventricose, and that of *C. longiceps* is elongate and slender. The face of *C. sylvicultrix* is short, and the nose between the impression for the suborbital glands broad and tapering; the fore-

head is much more convex and rounded. The following are the measurements of the skull of an adult male :—Length of skull 10 inches 1 line ; width at zygoma 4 inches 7 lines ; length of lower jaw 8 inches 9 lines.

The skull of *C. longiceps* resembles in general form and some other particulars the figure of the skull of the male *C. altifrons*, figured by Dr. Peters (Reise n. Mossamb. t. 38. f. 1). But that skull is not above half the size of the one here described ; and the form of the core of the horns is different, the one being conical and elongate, and the other angular and converging at the tip.



Skull of *Cephalophus longiceps*.

The skulls of the larger species of *Cephalophi* may be divided into two groups, according to the position of the horns, as compared with the frontal line.

In some the horns are decumbent and bent back, being nearly in a line with the forehead, as in *Cephalophus coronatus*, *C. sylvicultrix*, *C. Ogilbyi*, *C. natalensis* (figured in Cat. Ungulata, B.M. t. x. f. 1), *C. longiceps*, and *C. altifrons*, Peters. In others the horns are ascending, placed at an obtuse angle with regard to the line of the forehead, as in *Cephalophus Grimmius* and *C. ocellaris* of Peters (Reise nach Mossambique, Säugeth. t. 39, 40).

The forehead in all the *Cephalophi* with decumbent horns is convex and rounded ; but in *C. Ogilbyi* it is very much rounded—more than in any other species I know ; it is much higher than the base of the horn. In the species which Dr. Peters has called *C. altifrons* it does not appear to be so high as usual in the genus. In *C. Grimmius*, with ascending horns, it is flat between the eyes. The following observation is founded on the comparison of a series of skulls of males :—The skulls differ in the length of the face, thus :—In *C. natalensis* the face is short ; the distance from the orbit to the upper end of the intermaxillary bone is shorter than the length of the intermaxillary bone. In *C. sylvicultrix*, *C. Ogilbyi*, and *C. ocellaris* the distance above defined and the length of the intermaxillary are nearly equal. In *C. Grimmius* they are rather longer. In *C. longiceps* the distance from the front edge of the orbit to the tip of the

intermaxillary is much longer than the length of the intermaxillary.

In some skulls the nasal bones are the same length as the upper suture of the frontal one, as in *C. natalensis*, *C. sylvicultrix*, and *C. Ogilbyi*. In *C. altifrons*, according to Dr. Peters's figure, they are shorter. In *C. coronatus* and *C. rufilatus* they are much shorter—only about two-thirds the length. In one skull of *C. Grimmius* they are longer, and in another skull shorter, and in *C. longiceps* much longer.

The above observations are made only on a few, sometimes only on one specimen of the species; and when I have three or four specimens of the same species, as is the case with *C. Grimmius*, the skulls present some variations in the form of the nasal bones and in the length of the intermaxillaries as above noted.

Dr. Peters figures as the skull of a young female of *C. altifrons* a skull of a very different form from that of the skull with the horns of the male above referred to. I have not observed such a difference in the skulls of the females of any of the species of *Cephalophus* that have occurred to me. I have some doubt if it does belong to the same species, as the figure of the young female animal is very like the skull of a female *C. Grimmius*, which is an animal that has ascending horns in the male.

MISCELLANEOUS.

On the Pollen-grains of Ranunculus arvensis.

By GEORGE GULLIVER, F.R.S.

FINDING, on reference to my note-book entries (of no less than five different examinations in the course of four years), that the pollen-grains of *Ranunculus arvensis* always appeared to differ remarkably from those of its British allies, I have recently examined the pollen of these plants again. The difference now to be described appears so constant and remarkable as to deserve a place in the descriptions of this species.

The examinations include all the British yellow-flowered Ranunculeæ with divided leaves, except *R. parviflorus*. This species I have not seen growing. All the others are as common about Edenbridge as elsewhere. Even *R. hirsutus*, which Prof. Babington marks "Waste land and corn-fields, rare," grows abundantly in patches in some of our lanes or by-roads; but happily the very noxious weed *R. arvensis* scarcely intrudes into pastures, though it is a sad pest in some of our stiff arable land, and too well known to our husbandmen under the name of the "hedgehog."

The pollen of each species was repeatedly compared in the same stage of development—a necessary precaution, the neglect of which has too often led to perplexing discrepancies in botanical descriptions. In the following measurements the average sizes only are mentioned, as made from the pollen shaken out of the anthers on to a dry piece of glass, and viewed by transmitted light.

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